



Microsatellite in-situ Space Technology (MisST)

Ames Research Center

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Objective:

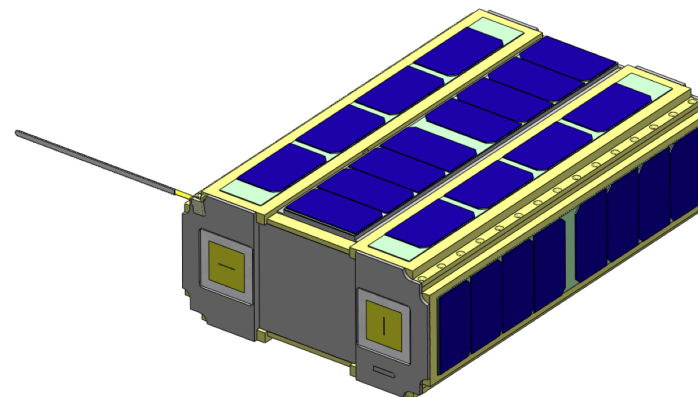
- ♦ To demonstrate the 6U satellite bus form factor, and validate the satellite and payload technologies for *in-situ* imaging of biological specimens on a free-flying platform.

Relevance/Impact:

- ♦ Imaging technologies will enable numerous biological research experiments in free-flying spacecraft. This investment into biological imaging technology and the increasingly rapid pace of new knowledge will result in a wealth of future opportunities to examine the foundations of life in the following areas using low-cost free-flying spacecraft: *Life at Molecular and Cellular Levels; Organisms throughout their lives; Interactions between organisms; Life across generations.*

Development Approach:

- ♦ MisST is a multi-payload spacecraft. MisST accommodates the Pharmasat payload/experiment systems and will execute a drug-challenge protocol. Also within MisST is a fluorescent microscope/imaging system that will image labeled nematodes (*C. elegans*) and then image them as they move past the microscope stage. The MisST development approach relies on existing processes and systems used on previous nanosatellite missions, with the addition of new technology (imager) provided via IPP program.



MisST Spacecraft (6U)

Key Mission Parameters

Mission Platform	Autonomous Free-flyer
Total Mass	<12 kg
Satellite Volume	Spacecraft overall 10x23x30cm (6U)
Satellite Power (on-orbit average)	~20 W
Flight Hardware Delivery	Approximately L-14 to 30 days
Operations Duration	~ 6 – 12 months
Launch Platform	Falcon 1e + NASA Launch Adaptor System

Project Life Cycle Schedule

Milestones	Phase A Review	Req'mts Review	PDA	CDA	Exp Ver Test	FRR	Launch	Ops	Return	Final Report
MisST	N/A	3/10	5/10	7/10	9/10	1/11	4/11	L+6 mnths	N/A	6 months post ops